

AWILCO

LITHIUM BATTERY LFP12100B

LIFEPO4 WITH BLUETOOTH

12V - 100AH



OWNER'S MANUAL



 Bluetooth®

 **AWILCO**
FLEXIBLE POWER SOLUTIONS

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INTRODUCTION

For secure and optimal use of this battery always read this manual before the unit is taken into use.

Make sure to study the technical specification before use. The technical specification applies to the 12V LiFePO₄ battery and describes the type and size, performance, technical characteristics, warning and caution of the rechargeable cell.

DISCLAIMER

While every precaution has been taken to ensure the accuracy of the contents of this guide, the supplier assumes no responsibility for errors or omissions. Note as well that specifications and product functionality may change without further notice.

CAUTION

Please be sure to read and save the entire manual before using your LFP12100B battery. Misuse may result in damage to the unit and/or cause harm or serious injury.

PRODUCT NO.

LFP12100B Lithium 12V 100Ah LiFePO₄ incl. Bluetooth

SERVICE AND CONTACT INFORMATION

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Web: www.awilco.dk

SAFETY INSTRUCTIONS

Lithium batteries are considered as hazardous goods due to the fact that they can overheat and ignite under certain conditions.

The LFP12100B battery is classified as dangerous goods UN 3481, Class 9, packing instruction 966 and 967 respectively. LFP12100B contains a power source with high energy density and hazardous materials.

CAUTION

1. Please always read the battery specification before using the battery.
2. Always use the battery + in accordance with specifications.
3. Must not be used or stored in the environment of corrosively, explosives, high temperature (like in hot environments or direct sun exposure)
4. Use a compatible charger
5. Do not short circuit terminals. Do not demolish or disassemble the battery.
6. Guarantee is two years as of invoice date. Life time: 2000 cycles or 2 years*. Any damage by incorrect use will void the guarantee. Free service will not be provided by the manufacturer.
7. The battery must be used in the assigned application.
8. Disposal of the batteries must be at approved recycling centers and in accordance with national legislation.

STORAGE

The LFP12100B battery must be fully charged before they are put into storage (please see the technical specification for information). Furthermore please note that the battery must be recharged every 3-6 months.

HANDLING & MAINTENANCE

Before installation, please read this manual and ensure qualified personnel to install the battery.

PRODUCT DESCRIPTION

Each LFP12100B carton contains the following:

- 1 x LiFePo4 battery
- 1 x Installation manual

Please check the battery construction on receipt of goods whether fastness, impact, drop and extrusion issue has caused box distortion. If yes, please contact the supplier.

* Please see "Electrical features" "Cycle life".

INSTALLATION

WARNING

It is recommended that all wiring must be handled by a certified technician or electrician to ensure adherence to the applicable electrical safety wiring regulations and installation codes. Failure to follow these instructions can damage the unit and may result in personal injury or loss of life.

CAUTION

Before beginning unit installation, please consider the following:

- The unit should be used or stored in an indoor area away from direct sunlight, heat, moisture or conductive contaminants.
- When placing the unit, make sure that the area is well ventilated.

DESCRIPTION OF FEATURES



Picture: LFP12100B

INSTALLING THE UNIT

CABLES

When mounting the LFP12100B it is essential that all cables are connected correctly and tightly to the connection terminals.

All cables connecting the batteries to the connection terminals must be of the same length and dimension.

WARNING:

Do NOT connect to the positive and negative terminals (short circuit) of the battery directly. Otherwise, the battery will be damaged or burned.

Please use a special LiFePo4 battery charger for optimized charging. Recommended: Standard charging voltage 14.6V, floating 13.8V and charging current $\leq 50A$.

PARALLEL OR SERIAL CONNECTION

GENERAL PRECAUTIONS:

- LFP12100B 100A batteries can be mounted parallel or serial. Other batteries or other brands must **NOT** be mixed together with LFP12100B batteries
- Make sure that all battery packs have the same voltage level (voltage difference $< 0.2V$) before connecting the batteries in parallel or serial. Charge every battery pack to full with same type of chargers and rest for 5 hours or more.

PARALLEL CONNECTION OF LITHIUM BATTERIES

Connect the batteries according to the pictures below. Wires are connected to the poles of the battery as follows:

1. Positive terminal from battery 1 to battery 2
2. Negative terminal from battery 1 to battery 2

Example of 4 units in parallel:



SERIAL CONNECTION OF LITHIUM BATTERIES

Connect the batteries according to the pictures below. Wires are connected to the poles of the battery as follows:

1. Negative terminal from battery 1 to positive terminal battery 2
2. Serial connect two batteries for 24V
3. Serial connect four batteries for 48V



Caution

1. Make sure that all batteries have the same voltage level (voltage difference $<0.2V$) before connecting the batteries in parallel or serial.

Caution: The batteries are only to be connected either parallel or serial



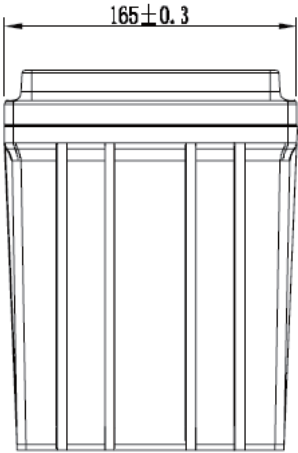
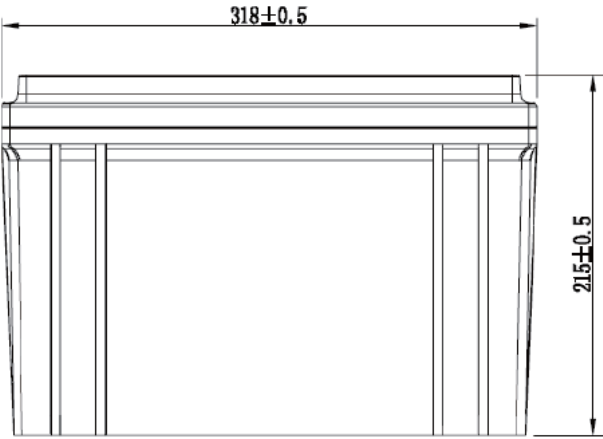
DO NOT serial and parallel connect the batteries at the same time!

2. Avoid reverse polarity by connecting + to + (Positive terminal) and – to – (Negative terminal)
3. Cable dimensions must be able to handle $> 100A$. Please use min. $25mm^2$ or higher.
4. Please make sure that the environment of the battery is safe and protected from corrosion, vibrations and loose connections. Make sure the battery is fastened. Connection impedance $< 0.1m\Omega$

Mounting

- Please choose a well ventilated area for mounting the unit
- The unit can be mounted both vertically and horizontally. Do NOT mount the unit upside down, or the unit can be damaged

DIMENSIONS



/ mm

ELECTRICAL FEATURES

STANDARD CHARGE

Charging the cell initially with constant current at 0.2C and then with constant voltage at 14.6V (accuracy $\pm 0.05V$) till charging current declines to 0.02C at 25°C.

STANDARD DISCHARGE

Discharge of the cell with constant current at 0.2C till cut-off voltage at 9.2V. Temperature: 25°C.

INITIAL INTERNAL IMPEDANCE

This means AC impedance of the pack measured at 1 kHz after 50% charge. Initial Internal Impedance $\leq 60m\Omega$.

INITIAL CAPACITY

The capacity means the discharge capacity of the battery, which is measured with discharge current of 0.2C with 9.2V cut-off voltage after the standard charge. Initial Capacity $\geq 95\%$ Nominal Capacity. Temperature: 25°C.

BATTERY CAPACITY AS SHIPMENT

Capacity of battery pack shipment is more than 50%.

CYCLE LIFE

Test condition: Temperature: 25 ~ 30°C Charge, 0.2C CC to 14.6V, and CV to 200mA cut off Discharge, 0.2C DC discharge to 9.2V, 80% or more of 1st cycle capacity at 0.2C discharge of operation, cycles quantity must not be less than 2000cycles.

BLUETOOTH MINI GUIDE

Every LFP12100B battery can be connected and monitored by a mobile phone via Bluetooth. However, the APP only supports Android and IOS.

Attention: Please note that only one user at a time can be connected to the Bluetooth feature.

1. Download the APP by scanning APP-store or Play store – AWILCO Smart Battery App
2. Open the APP
 - a. Scanning
 - b. Found Bluetooth!
3. Under "Devices" – find and choose the according battery
 - a. Trying to create new connection
 - b. Connecting to GATT server
 - c. Connected!
4. When "status connected" is shown – press "start"
5. Information about the battery in question, voltage + capacity, e.g. 13,3V 100Ah
 - a. Under U.I.T.C. info you can follow the battery temperature and – cycles
 - b. Under System info "Events" includes a log status of the battery
6. Choose the dots in the lower right corner and the box "Login dialog" will appear
7. Login dialog: Info about battery cell status – press 1234 + confirm
8. Login dialog: Rename device – press 5678 + confirm



TECHNICAL SPECIFICATION

Specification	LFP12100B
Nominal voltage	12.8V
Typical capacity	100Ah
Internal impedance	$\leq 20\text{m}\Omega$
Max charge voltage	14.6 \pm 0.1V
Cut-off discharge voltage	$\leq 10\text{V}$
Max continuous charge current	100A
BMS / PCM	100A
Pulse discharge current (2s)	300A
Terminal Type	M8
Battery Case Type	ABS
Work temperature	-20 °C to 55 °C
Weight (approx.)	12.80kg
Dimension	318 x x165 x 215mm
Support Bluetooth	Yes